

REMARKS

Reconsideration of the above-identified patent application in view of the amendments above and the remarks following is respectfully requested.

Claims 1, 3-30 and 36 are in this case. Claims 1, 3-30 and 36 have been rejected under § 103(a). Independent claims 1, 12, 18, 20 and 21 and dependent claims 3-11, 13-17, 29 and 30 have been canceled. New dependent claim 37 has been added.

The claims before the Examiner are directed toward flash-based units for providing boot code to be executed by external processors and toward related systems and methods. Boot code, including code for basic initialization of the system, is stored in a flash memory that cannot be directly executed. The basic initialization code is transferred to a volatile memory component for execution by a processor to boot the system.

§ 103(a) Rejections – Brown et al. ‘739 and Kakinuma et al. ‘349 and further in view of Garner ‘482

The Examiner has rejected claims 1, 10-13, 16-18, 20, 21, 29 and 30 under § 103(a) as being unpatentable over Brown et al., US Patent No. 6,201,739 (henceforth, “Brown et al. ‘739”) and Kakinuma et al., US Patent No. 5,640,349 (henceforth, “Kakinuma et al. ‘349”) and further in view of Garner, US Patent No. 6,549,482 (henceforth, “Garner ‘482”). The Examiner’s rejection is respectfully traversed.

Claims 1, 10-13, 16-18, 20, 21, 29 and 30 now have been canceled, thereby rendering moot the Examiner’s rejection of these claims.

**§ 103(a) Rejections – Brown et al. ‘739 and Kakinuma et al. ‘349 and further in
view of Garner ‘482 and Anderson et al. ‘577**

The Examiner has rejected claims 3-5 under § 103(a) as being unpatentable over Brown et al. ‘739 and Kakinuma et al. ‘349 and further in view of Garner ‘482 and Anderson et al., US Patent No. 6,295,577. The Examiner’s rejection is respectfully traversed.

Claims 3-5 now have been canceled, thereby rendering moot the Examiner’s rejection of these claims.

**§ 103(a) Rejections – Brown et al. ‘739 and Kakinuma et al. ‘349 and further in
view of Garner ‘482 and Mills et al. ‘688**

The Examiner has rejected claims 6 and 7 under § 103(a) as being unpatentable over Brown et al. ‘739 and Kakinuma et al. ‘349 and further in view of Garner ‘482 and Mills et al., US Patent No. 6,385,688. The Examiner’s rejection is respectfully traversed.

Claims 6 and 7 now have been canceled, thereby rendering moot the Examiner’s rejection of these claims.

**§ 103(a) Rejections – Brown et al. ‘739 and Kakinuma et al. ‘349 and further in
view of Garner ‘482 and Nakata ‘101**

The Examiner has rejected claims 8, 9, 14 and 15 under § 103(a) as being unpatentable over Brown et al. ‘739 and Kakinuma et al. ‘349 and further in view of Garner ‘482 and Nakata, US Patent No. 6,523, 101. The Examiner’s rejection is respectfully traversed.

Claims 8, 9, 14 and 15 have been canceled, thereby rendering moot the Examiner’s rejection of these claims.

§ 103(a) Rejections – Gefen et al. ‘702 and Garfunkel et al. ‘404

The Examiner has rejected claims 19, 22-28 and 36 under § 103(a) as being unpatentable over Gefen et al., US Patent Application Publication No. 2002/0138702 (henceforth, “Gefen et al. ‘702”) and Garfunkel et al., US Patent No. 6,615,404 (henceforth, “Garfunkel et al. ‘404”). The Examiner’s rejection is respectfully traversed.

Gefen et al. ‘702 teach a system in which code stored in a flash memory 14, that is not directly executable, is transferred to a SRAM buffer 10 for execution.

Garfunkel et al. ‘404 teach an embedded system 10 and a method of upgrading the software of the system. Embedded system 10 includes a controller 11, a flash memory 12 and a RAM 13. The current boot code of embedded system 10 is stored in an ordinary sector 21 of flash memory 12. The original boot code of embedded system 10 is stored in a special sector 20 of flash memory 12 that is hardware-protected, for example by requiring an unusually high voltage for reprogramming. If an updating of the system software in flash memory 12 is unexpectedly interrupted, the original boot code is available as a backup in sector 20 to re-start the system.

As Applicant showed in response to the Office Action mailed January 28, 2004, flash memory 12 of Garfunkel et al. ‘404 is directly executable. The Examiner now contends that it would be obvious to substitute a non-executable flash memory, in the manner of Gefen et al. ‘702, for flash memory 12 of Garfunkel et al. ‘404 to obtain the present invention as recited in claims 19, 22-28 and 36.

Applicant submits that the Examiner has failed to establish *prima facie* obviousness of the present invention as recited in claims 19, 22-28 and 36. To quote MPEP 2143.03,

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)

In the present case, neither reference teaches or suggests the limitation, recited in independent claims 19, 22 and 24-28, that the “portion” or the “first portion” or the “at least portion” of the boot code is for basic initialization of the system.

Gefen et al. ‘702 makes no mention of boot code at all. Garfunkel et al. ‘404 executes boot code, but it is clear that the boot code executed by Garfunkel et al. ‘404 is *not* the portion of the boot code that effects basic initialization of embedded system 10. The Examiner’s attention is respectfully directed towards column 7 lines 24-27 of Garfunkel et al. ‘404:

When the system 10 initializes, the controller 11 selects the boot program which is used for initialization by first checking the validity of the last boot program version which is stored in the boot sector 21.

In order for controller 11 to select anything from flash memory 12, the *basic* initialization of system 10 must already have been completed, for example by controller 11 executing basic initialization boot code that is installed in a ROM inside controller 11. Therefore, *none* of the boot code stored in flash memory 12, either in sector 20 or in sector 21, can be basic initialization boot code.

In addition, neither reference teaches a limitation that is recited in independent claim 22, the limitation of that the first portion of the boot code contains a command for copying a second portion of the code. The Examiner identified this limitation with column 7 lines 37-38 of Garfunkel et al. ‘404, “...a new downloading and programming process is enabled”. But the “downloading” in question has nothing to do with fetching boot code from flash memory 12. The “downloading” in question is not downloading *within* system 10, but rather downloading *from* an external device *to* system 10 described starting in column 4 line 66:

System 10 is connected to a data source via a communication link 14, through which new program versions may be downloaded into the flash memory 12 and/or the RAM 13. The controller 11 controls data flow. Therefore, downloading and programming of a new software and firmware version into system 10 may be carried out via the link 14, typically by connecting a programming device (e.g., a computer to the link 14. (emphasis added)

With independent claims 19 and 22 allowable in their present form it follows that claims 23 and 36 that depend therefrom also are allowable.

Other Rejections

The Examiner also has rejected claims 31-35 under § 103(a) as being unpatentable over Brown et al. '739 and Kakinuma et al. '349 and further in view of Garfunkel et al. '404.

Claims 31-35 were canceled in response to the Office Action mailed January 28, 2004. Applicant presumes that the Examiner inadvertently copied this rejection from that Office Action.

New Claim

To further distinguish the present invention from the prior art cited by the Examiner, new claim 37 has been added. New claim 37 adds to claim 19 the limitation that the busy signal is sent in response to a power-on signal, as described in the specification on page 10 lines 10-12:

When the "power-on" signal is received, indicating that system 30 should now "boot up", a busy signal on bus 38 signals CPU 32 not to begin operation (stage 1).

Because neither Gefen et al. '702 nor Garfunkel et al. '404 address basic initialization, neither reference teaches this limitation. It follows that this limitation is not *prima facie* obvious.

In view of the above amendments and remarks it is respectfully submitted that independent claims 19, 22 and 24-28 and hence dependent claims 23, 36 and 37 are in condition for allowance. Prompt notice of allowance is respectfully and earnestly solicited.

Respectfully submitted,

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